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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,742	04/07/2000	Alex Kuperman	44251	2331

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THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION  
P. O. BOX 1967  
MIDLAND, MI 48641-1967

EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 11/25/2002

16

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-16

# Office Action Summary

Application No.

09/544,742

Applicant(s)

KUPERMAN ET AL.

Examiner

Edward M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 18, 19 and 21-32 is/are rejected.
- 7) ☒ Claim(s) 15, 17 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                              | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____.                                   |

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9 and 18-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta et al. 5,051,394 in view of Iwakura et al. 5,502,020 (already made of record).

Regarding claim 1, Haruta '394 discloses a method for production of ultra-fine gold oxides comprising adding a gold compound with carboxylic acid (see column 3, lines 14-18) and a reducing agent (see column 1, lines 64-65), using a titanium oxide carrier (see column 8, lines 30-32).

Haruta '394 fails to specifically disclose impregnation.

Iwakura '020 discloses impregnation of a titania carrier (see column 2, lines 37-39 and column 3, lines 37-41).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the impregnation of Iwakura in the gold catalyst of Haruta

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because Iawkura discloses his impregnation in a process for making a gold catalyst (see abstract and column 3, lines 12-13) to make improved highly selective catalysts with long-life (see column 1, lines 18-20) and to maintain strength (see column 3, lines 40-41) and also because of Applicant's repeated admission that impregnation is well known technique in the catalyst art.

Regarding claim 2, Haruta '394 discloses chloroauric acid, sodium chloroaurate, gold cyanide, potassium gold cyanide, and diethylamineauric acid trichloride (see column 4, lines 46-51).

Regarding claim 3, Haruta '394 discloses atomic ratio of  $\text{Au/Ti} = 1/19$  (see column 9, lines 3-4).

Regarding claim 4, Haruta '394 discloses reduction with carboxylic acid (see column 6, lines 27-30).

Regarding claims 5-7, Haruta '394 discloses carboxylic acids and salts thereof (see column 5, lines 38-56).

Regarding claim 8, Haruta '394 discloses at least 1 mol per mol (see column 5, lines 57-61).

Regarding claim 9, Haruta '394 discloses mixing citric acid solution with the coprecipitate (see column 8, lines 61-67).

Regarding claim 18, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

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Regarding claim 20, Haruta '394 discloses 0.05 mol titanium sulfate (see Example 1), and atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claims 22-23, Haruta '394 discloses adding an alkali compound to the metal salt (see abstract).

Regarding claim 24, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 25, Haruta '394 discloses dissolving in magnesium citrate solution (see Example 1).

Regarding claim 26, Haruta '394 discloses thorough washing (see column 9, line 1).

Regarding claim 27, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 29, Haruta '394 discloses 20-90 degrees Celsius (see column 6, lines 64-68).

Regarding claim 30-32, Haruta '394 discloses drying and firing in air at 400 degrees Celsius (see column 9, lines 1-2).

Regarding claims 10 and 21, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a titanium salt as reducing agent because Haruta '394 discloses using titanium both as salts in gold compounds and support material (see column 4, lines 52-58 and column 8, lines 30-32), and Haruta also discloses

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reducing agents comprising carboxylic acids and salts thereof, giving examples of various transition metals (see column 5, lines 38-56).

Regarding claims 11-14, Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of  $\text{Au/Ti} = 1/19$  and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

Regarding claim 19, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 28, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct impregnation to the point of incipient wetness or less because Haruta '394 discloses impregnation with solution precipitation and also in view of Applicant's admission that such techniques are known in the art (Specification, page 7, first full paragraph).

3. Claims 10-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394 in view of Iwakura '020 as

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applied to claim 1 above, and further in view of Hirose et al.  
5,532,030.

Regarding claims 10-14, Hirose '030 discloses a hydrogenation product catalyst comprising a reducing agent or an acetylacetonate of a titan salt, (see column 26, lines 30-38).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the titan acetylacetonate of Hirose as reducing agent in the catalyst composition of Haruta because Hirose discloses his acetylacetone for use in a catalyst (see column 26, line 31) with reducing agent (see column 26, line 35), and Haruta discloses reduction with various organometallic salts (see column 5, lines 38-56).

***Allowable Subject Matter***

4. Claims 15, 17, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: It would not have been obvious to

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one of ordinary skill in the art at the time the invention was made to use the titanyl acetylacetonate of Hirose in the process of Haruta, nor would it have been obvious to use the percentage of titanium of the instant claims 17 and 20.

***Response to Arguments***

5. Applicant's arguments filed 10/9/02 have been fully considered but they are not persuasive.

Claim 20 is now indicated as containing allowable subject matter for the reasons above.

It is argued that as initial and minimum standards, each reference cited against the application must qualify as prior art under 35 U.S.C. §102 and should be in the field of Applicant's endeavor. This is not persuasive because the cited art qualifies as prior art under section 102 and it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Applicant claims a metal catalyst containing gold and titanium, Haruta '394 discloses a method for production of ultra-fine gold oxide catalysts, Iwakura discloses a process for making a catalyst

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containing precious metals, and Hirose '030 discloses a hydrogenation product catalyst. Applicant appears to suggest that all references must be identical to the claimed invention according to Oetiker. This is not persuasive because Oetiker does not even require that the reference be in the field of Applicant's endeavor, so long as it addresses a reasonably pertinent problem with which Applicant was concerned. Here, Applicant's field of endeavor is to make a catalyst, which is also the endeavor of each cited reference.

It is argued that firstly, Iwakura fundamentally pertains to a *silver* catalyst. This is not persuasive because each cited reference pertains to a process for making a metal catalyst. Applicant also appears to suggest that because Iwakura discloses a "laundry list" of metals, the instant claims are allowable. It is noted that Applicant also discloses and claims various combinations of metals and compounds (see, for example, claim 2). Further, Haruta is relied upon for gold, not Iwakura. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant also does not claim a catalyst which "fundamentally" contains gold, as Applicants appear to suggest. Applicant merely

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uses the open language "comprising" to claim a catalyst that contains gold, which limitation is disclosed in the cited prior art (see above). It is noted that the features upon which applicant relies (i.e., a catalyst which does not contain silver) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that secondly, Iwakura discloses the preparation of a silver catalyst for the *direct oxidation* of ethylene. This is not persuasive because Applicant merely claims a catalyst, not a catalyst for "hydro-oxidation" as Applicant appears to suggest. It is noted that the features upon which applicant relies (i.e., a catalyst for "*hydro-oxidation*") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that thirdly, Iwakura relates to a catalyst used in the direct oxidation of *ethylene with oxygen*. This is not persuasive because does not claim a catalyst "*for the hydro-oxidation of a C3 or higher olefin*", as Applicant appears to

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suggest. Applicant merely claims a process for making a catalyst with the open language comprising.

It is argued that in the alternative, even if Iwakura is maintained, cast law further establishes that when a rejection depends upon a combination of prior art references. This is not persuasive because the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the impregnation of Iwakura in the gold catalyst of Haruta because Iawkura discloses his impregnation in a process for making a gold catalyst (see abstract and column 3, lines 12-13) to make

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improved highly selective catalysts with long-life (see column 1, lines 18-20) and to maintain strength (see column 3, lines 40-41) and also because of Applicant's repeated admission that impregnation is well known technique in the catalyst art. This does not appear to be "unfair twisting" of the teachings of the cited art.

It is argued that the Examiner argues that the motivation to combine Haruta '394 and Iwakura is found in Iwakura. This is not persuasive because Applicant appears to suggest that it would somehow be unobvious to one of ordinary skill in the art at the time the invention was made to combine teachings from references teaching silver and gold catalysts. If such a suggestion were proven by Applicant, the claims may in fact be allowable. However, it seems clear that it would be considerably more than obvious to one of ordinary skill at the time the invention was made to look the catalyst art in general rather than only to catalysts having identical ingredients, since many process steps tend to be generic to many references regardless of particular ingredients, such as heating, drying, precipitating, impregnating, and/or calcining.

It is argued that the Examiner again regards Applicants' admission that impregnation is well-known as supportive. This is not persuasive because it also seems clear that steps that

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Applicant admits to be "well-known" would be more obvious to one of ordinary skill than steps which are not "well-known".

Therefore, Applicants' admission is still considered supportive of the instant obviousness rejection, even though it is not the only support upon which the Examiner relies.

It is argued that regarding claim 1, the Examiner argues that Haruta '394 discloses. This is not persuasive because Haruta does not "teach away" from reductant addition because Haruta does not teach that reductant should be avoided or cannot be used. The Examiner does not consider this to be "twisting the teachings" of the prior art, as Applicant asserts, since merely pointing out a disadvantage would suggest that reductant is known in the art and has been used, but with the disadvantage. Further, Applicant does not appear to refute the actual teaching of a disadvantage. Rather, Applicant merely suggests that the claims are patentable merely because a disadvantage is disclosed. However, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

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It is argued that further in support of Applicant position, the art "as a whole" teaches away from impregnation. This is not persuasive because impregnation is taught, as noted many times by the Examiner. No cited reference teaches that impregnation cannot be used or should be avoided. Rather, Iwakura '020 discloses impregnation of a titania carrier (see column 2, lines 37-39 and column 3, lines 37-41). Applicant himself admits that impregnation is well known in the art (see above).

It is argued that at pages 3, 4, and 5 of the Office Action. This is not persuasive because the claims have been rejected subsequent to the Appeal Brief referred to be Applicant. Iwakura teaches impregnation.

It is argued that regarding claims 4 and 5-7, the Examiner argues that Haruta '394 discloses reduction with carboxylic acid. This is not persuasive because Applicant claims carboxylic acid as a specific reducing agent (see for example, instant claim 6) while arguing that the carboxylic acid of the cited reference is not a reducing agent. Since carboxylic acid is disclosed, Applicant's reducing agent is disclosed.

It is argued that with regard to claims 22, 23, 24, and 27. This is not persuasive because Applicant does not claim a step wherein sodium is "preserved" as Applicant appears to suggest and because Haruta. Applicant also appears to suggest the

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rinsing step of would remove the promoter in Haruta's product but not the promoter in Applicant's product. However, this is not considered persuasive since the instant Application discloses submerging in doubly deionized water (see Example 4). discloses adding an alkali compound to the metal salt (see abstract). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a process wherein sodium is preserved) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that with respect to claims 10, 13, 14, 19, and 21, Applicants repeat their rebuttal arguments. This is not persuasive because the Examiner has responded to those arguments previously and Haruta discloses titanium in both gold compounds and support material. Applicant merely points out that a reducing agent and a titania support are different, which has been acknowledged by the Examiner in previous communications and is why the limitation is rejected as obvious rather than anticipated.

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It is argued that with regard to claims 11 and 12. This is not persuasive because Applicant does not claim a reducing agent comprising a specific type of Ti-C bond. It is noted that the features upon which applicant relies (i.e., a specific Ti-C bond) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that with regard to claim 28. This is not persuasive because whether or not Haruta '394 teaches "impregnation with solution precipitation" claim 28 is obvious in view of Applicant's admission in the instant specification. Applicant does not appear to attempt to establish any novelty or inventiveness of the claimed incipient wetness technique. Rather, Applicant appears to suggest that the claim is allowable because Haruta does not teach impregnation. However, Haruta is not relied upon for impregnation, Iwakura is. Applicant's reply brief does not address Iwakura, since that reference was not then relied upon. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

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USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231

USPQ 375 (Fed. Cir. 1986).

It is argued that the chemical and catalyst arts are well established to be wide-ranging fields and notoriously unpredictable. This is not persuasive because the claimed limitation is disclosed in the prior art, not for some other purpose as Applicant appears to suggest, but specifically for use in a catalyst and, more specifically, a titanium catalyst. Applicant appears to suggest that even though Hirose discloses titanyl acetylacetonate in a titanium catalyst and both Hirose and Haruta disclose catalysts and both disclose titanium, Applicant's claim to that subject matter is unobvious because the catalysts of Haruta and Hirose are not identical. However, contrary to Applicant's assertion, Applicant's appeal brief was not found persuasive on this point.

It is argued that claims 11 and 12 are likewise unobvious. This is not persuasive because Applicant does not claim a reducing agent comprising a specific type of Ti-C bond. It is noted that the features upon which applicant relies (i.e., a specific Ti-C bond) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read

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into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that as to claim 16. This is not persuasive because Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

**Conclusion**

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

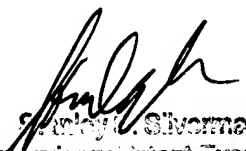
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ

November 18, 2002

  
Stanley S. Silverman  
Supervisory Patent Examiner  
Telephone Number 703